I. PERSONAL

Robert Rutherford, Ph.D.
BANN118 Department of Biology
Seattle University

II. EDUCATION

University of Minnesota, Morris	Biology, *summa cum laude*	B.A.	1992
University of Wisconsin, Madison	Genetics	M.S.	1995
University of Wisconsin, Madison	Genetics	Ph.D.	1997

III. EMPLOYMENT & TEACHING EXPERIENCE

Seattle University, Seattle, WA	2010-present	Associate Professor of Biology
Seattle University, Seattle, WA	2005-2010	Assistant Professor of Biology
St.Olaf College Northfield, MN	2003-2005	Assistant Professor of Biology
Incyte Genomics, Palo Alto, CA	2002-2003	Managing Scientist
Incyte Genomics, Palo Alto, CA	2001-2002	Senior Scientist
HHMI/UCSF San Francisco, CA	1998-2001	Helen Hay Whitney Postdoctoral Fellow
Coe College, Cedar Rapids, IA	1997-1998	Visiting Assistant Professor of Biology
University of Wisconsin-Madison,WI	1992-1997	NIH Pre-doctoral Fellow

COURSES TAUGHT AT SEATTLE UNIVERSITY:

Biology 240	General Genetics	Typically fall since 2005
Bio1ogy 220	Microbiology	Winter since 2006
Biology 385	Plant Physiology	Spring since 2006
Biology 392	Genomics	Fall since 2007
Biology 487	Biology Senior Synthesis	Varies based on load

OTHER COURSES TAUGHT, MANY AT OTHER INSTITUTIONS:

Biology 233	Intermediate Genetics	Spring, Sum I[*], Fall '04
Bio1ogy 125	Cellular Biology and Genetics	Fall '03
Computer Science 378	Seminar in Bioinformatics	Interim '04 [*]
Biology 121	Issues in Biology	Spring '03
BIO-145	Cellular and Molecular Biology and Laboratory	Fall '97
BIO-150	Organismal and Ecological Biology Laboratory	Spring '98
BIO-202	Topics in Evolution	Interim '98
BIO-208	Microbiology	Fall '98
BIO-205	General Botany and Laboratory	Spring '98
BIO-525	Cell Physiology	Spring '98

[*]=team taught courses

IV. PROFESSIONAL ACTIVITY
Student coauthors designated in bold. SU students are underlined.

1) PUBLICATIONS AND SOFTWARE.

Haller R, Kennedy M, Arnold N, Rutherford R**. (2010)** The transcriptome of *Mycobacterium tuberculosis*. *Appl Microbiol Biotechnol*. Mar;86(1):1-9. Invited Review

Bartek IL, Rutherford R, Gruppo V, Morton RA, Morris RP, Klein MR, Visconti KC, Ryan GJ, Schoolnik GK, Lenaerts A, Voskuil MI. (2009) The DosR regulon of *M. tuberculosis* and antibacterial tolerance. *Tuberculosis (Edinb)*. Jul;89(4):310-6. Epub 2009 Jul 3.

Roback P., **Beard J., Baumann D., Gille C., Henry K., Krohn S., Wiste H.,** Voskuil M.I., **Rainville C.** and Rutherford R. (2007) A predicted operon map for *Mycobacterium tuberculosis*. *Nucleic Acid Research*. 35 (15) 5085-5095.

Landsteiner B., Olson M.R. and Rutherford R. (2005) Current Comparative Table automates custom genome searching and data management. *Nucleic Acids Research*. 33:W770-773.

Voskuil, M.I., Schnappinger D., Rutherford R., Liu, Y. and Schoolnik G.K. (2004) Regulation of the PE/PPE genes. *Tuberculosis* 84(3-4): 256-62.

Brown R.A., Allen R.J., Huff, C.W. and Rutherford, R. (2004) Six Strategies for Merging Computer Science Undergraduate Research into the Classroom . *Council on Undergraduate Research Abstract*.

Rutherford R. The LifeSeq Foundation Document Data Type v3.0. (2003) Incyte Genomics Foundation Release Notes. (The DTD is the structure of the company's database product). Software.

Rutherford and many others at Incyte Genomics. (2002) LifeSeq Foundation: the human genomic database used by 19 of the top 20 pharmaceutical companies. Responsible for the scientific validity of Incyte's $250M/annual Foundation biological database. Managed the integration of gene expression and population genetic information with genomic data into the final human genome view used by 19 major pharmaceutical companies. Releases 5-8. Software.

Rutherford R., Gallois P. and Masson P. (1998) The *wvc1* allele of the ASA1 locus: a startling connection between root waving and tryptophan biosynthesis. *The Plant Journal.* 16: 145-154.

Rutherford R. (1997) Patterns of *Arabidopsis thaliana* root growth on surfaces: a genetic analysis. *Doctoral dissertation: University of Wisconsin.*

Rutherford R. and Masson P. (1995) *Arabidopsis thaliana sku* mutant plants show exaggerated surface-dependent alteration in root direction. *Plant Phys*. 111:987-998.

P. Masson, **J. Sedbrook, R. Rutherford** et al. (1993) Molecular Genetics of Root Gravitropism and waving in *Arabidopsis thaliana*. *ASGSB Bulletin* 7(1):26-27.

2. EXHIBITS
Research presentations by my students (identified in bold, SU students underlined)

Roback P, **Block K, Jeavons E, Kunz L, Arnold N, Fingar C, Hay M, and** Rutherford R. Defining the MTB transcriptome through statistical and molecular methods. (2008) Systems Biology and Engineering meeting. Institute for Systems biology, Seattle WA In preparation for April 20-21.

Block K, Jeavons E, Kunz L, Roback P and , Rutherford R (2008) Statistical Models for Operon Prediction in *Mycobacterium tuberculosis* NCUR. Under review**.**

Arnold N, Fingar C and Rutherford R. (2007) Computational Studies of the Transcriptome of *Mycobacterium tuberculosis*. Murdock Trust Meeting '07. Salem Oregon

Hay M, Duangporn J and Rutherford R. (2007) Operon confirmation in *Mycobacterium tuberculosis* (MTB). Murdock Trust Meeting '07. Salem Oregon Poster G-20

Rainville C and Rutherford R. Computational Studies of the Transcriptome of *Mycobacterium tuberculosis*. (2006) Murdock Trust Meeting '06. Portland Oregon

Beard J, Henry K, Krohn R, Wiste H, Roback R and Rutherford R. (2005) Operon Prediction in *Mycobacterium tuberculosis* (MTB) from Gene Expression Data. Intelligent Systems in Molecular Biology Meeting '05. Detroit Michigan Poster G-20

Beard J, Henry K, Krohn R, Wiste H, Roback R and Rutherford R. (2005) Operon Prediction in *Mycobacterium tuberculosis* (MTB) from Gene Expression Data. Intelligent Systems in Molecular Biology Meeting '05. Detroit Michigan Poster G-20

Olson MR, and Rutherford R. (2004) Current Comparative Table automates custom genome searching and data management April 16 Building Bioinformatics Bridges Symposium. U of MN.

Landsteiner B, Olson MR and Rutherford R. (2004) Current Comparative Table: software for automating domain searches and sequence analysis for bench scientists. Summer Research symposium '04.

Beard J and Rutherford R. (2004) A web accessible Microarray Gene expression database for *Mycobacterium tuberculosis*. St. Olaf Summer research symposium '04.

3. INVITED PEER REVIEWS, LECTURES AND WORKSHOPS

Peer reviews of a number of fellow faculty at Seattle University

Invited panelist. Preparing Future Faculty Workshop, UW, Summer 2008

Invited to review undergraduate program in bioinformatics. 2009.   Held in confidence.

Invited, external reference/reviewer of a professional peer's professional accomplishments for tenure review at a top-tier liberal arts college. Details held in confidence, but available upon request. 2006

Invited and co-lead the weeklong annual seminar for the North Central Section of the Mathematical Association of America. "Bioinformatics: Where Mathematics Meets Molecules" University of Minnesota-Duluth, July 18-22, 2005. (Co-led with Dr. Laurie Heyer of Davidson College)

CoLed Bioinformatics Workshop (Hands on Bioinformatics" MITC) Together with my colleague from computer science (Allen RJ), I led a workshop entitled "Algorithms and Data Structures in Bioinformatics" for colleagues from 27 top liberal arts colleges. Midwest Instructional Technology Center May 16-18, 2004 workshop at Hope College.

Invited Seminar at Carleton College. "Computational Biology of Latency in *Mycobacterium tuberculosis*."   Feb 2. 2004

Invited Seminar at Coe College. "Bioinformatics and Infectious Diseases" 2003

4. GRANTS SUBMITTED
 A) External
  - NIH R15-AREA, Operon Finding in *Mycobacterium tuberculosis*.   Submission to NIAID. Jan 25, 2005 and 2006.
  - Murdock Trust Life Sciences Research Program: submitted '05, '06. Awarded '06
  - CRA-W (Committee on the Status of Women in Computing Research) fellowship. *Software identification of transcriptional terminators in the pathogenic bacterium Mycobacterium tuberculosis.* Prepared together with Adair Dingle and students Marah Hay (biology) and Nijar Jiadeep (computer science), May 2007. Not funded.
  - Co-PI on NSF cRUI *GeneStream: from Sequence to Cell Function*, awarded May 2004.
  - Assisted with securing the HHMI renewal for St. Olaf College, contributing my ideas, text, and revisions. 2004
  - Secured my own Post Doctoral Fellowship Funded by 5 agencies, accepted fellowship with Helen Hay Whitney Foundation.
 B) Internal
  - Seattle University Summer Fellowship 2006

5. MEMBERSHIP IN PROFESSIONAL SOCIETIES

- International Society for Computational Biology 2002, 2004-present
- Union of Concerned Scientists, 2004-present

6. MISCELLANEOUS PROFESSIONAL ACTIVITY

- Trained and managed a team (13 individuals) of scientists, programmers and bioinformatic associates, several of whom are now in graduate school. Developed and implemented a new trade-secreted algorithm that identified 820 previously unknown splice-variants. Managed the design, prototyping, and testing of software to carry those findings into production. Expanded the existing "gene-centric" data model used by numerous (19) pharmaceutical companies to describe population genetic and epidemiological data, and to support biological pathways and comparisons with additional mammalian species.

V. SERVICE TO SEATTLE UNIVERSITY

1. Service within the Department of Biology
- Administrated departmental web pages, 2006-2009
- Aided in hiring activities for 9 tenure track hires, 2004-12
- Substitute lectures for colleagues, as needed.
- Academic advisor for about 12-20 biology majors at any given time, Fall 2006-present
- Liaison between SU Biology department and the Institute for System's biology's summer undergraduate research program.

2. Service to the College of Science and Engineering
- Co-Director of SU S&E Summer Undergraduate Research Program, 2007
- Seattle University Radiation Safety Officer (Fall 2005-2009)
- Member of SU working group which crafted a response to President's invitation for proposal to increase academic excellence. The proposal is entitled "Promoting the Seattle University Mission via the Creation of a Center of Student/Faculty Engagement"
- Advisor and seminar leader for of Merck program (Chemistry and Biology) Grant 2007

3. Service to the wider University

- Elected Vice President of Seattle University's Academic Assembly. Serving 2011-2012
- Academic Assembly Representative for Science and Engineering. Elected by Peers. Serving 2010-2012
- Represented the S&E faculty by presenting to the Murdock Trustees at their SU site visit, April 27, 2007
- Appointed to Seattle University's Budget Advisory Committee 2010-2011
- Seattle University Technology Committee 2011-2012
- Member, Institutional Review Board (Fall 2006 - present). Reviewed approximately fifteen ~20 page proposals per year.
- Religion and Evolution Reading/Discussion Group member 2005-6.